

SECRETARY OF ENERGY'S REPORT TO THE PRESIDENT:

**ENERGY CONSERVATION ACTIONS TAKEN AT FEDERAL
GOVERNMENT FACILITIES IN RESPONSE TO
THE MAY 3, 2001 PRESIDENTIAL MEMORANDUM**

June 2001

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I. OVERVIEW

On May 3, 2001 President Bush issued a directive to the heads of Executive Departments and agencies to take appropriate actions to conserve energy use at Federal facilities (see Appendix B). In particular, President Bush called on agencies located in regions where electricity shortages are possible to conserve energy use during peak hours. The directive required agencies to report on their energy conservation actions within 30 days.

Through guidance issued by the Department of Energy's Federal Energy Management Program (see Appendix C), Federal agencies were asked to update their energy management implementation plans. These plans address a wide range of energy management activities, including use of alternative financing for energy improvements, purchase of ENERGY STAR® products, and use of sustainable design in new construction. As a specific area of focus, agencies were asked to report on measures taken to reduce electrical demand, particularly during peak hours.

This report summarizes actions taken to reduce electrical demand, as reported as of June 8, 2001 by 34 agencies. This report was prepared in consultation with agencies' Senior Energy Officials appointed under Executive Order 13123 and through the Congressionally-mandated Federal Interagency Energy Management Task Force (see Appendix A).

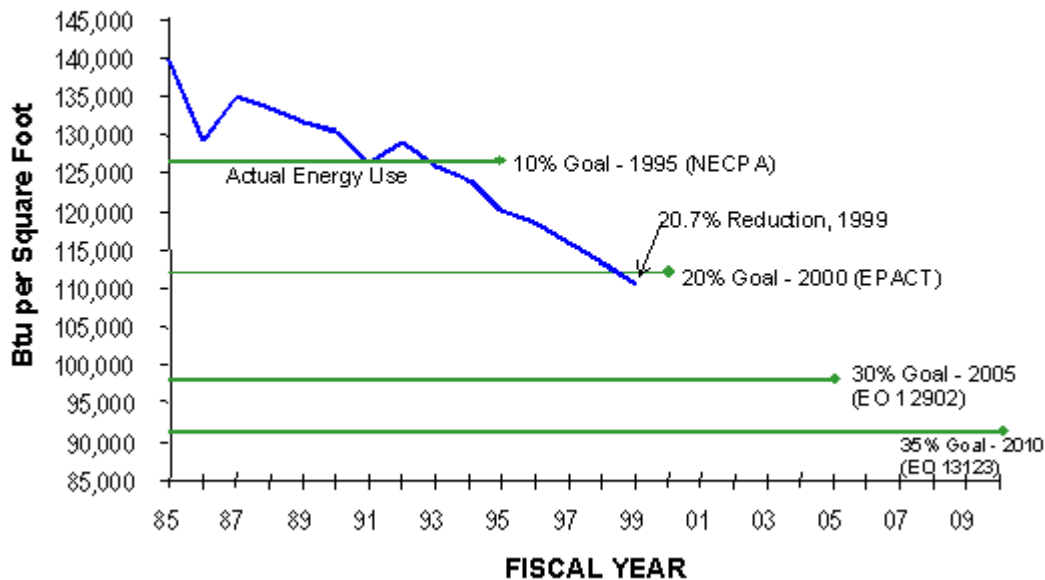
Part I provides an overview of Federal agencies' response to the Presidential Directive and specifically highlights activities aimed at reducing peak demand at Federal facilities located in California. Part II provides brief summaries of the 19 largest agencies' demand reduction activities. These nineteen agencies manage much of their own facility space and together comprise almost 99 percent of the energy used in Federal buildings and facilities. Part III summarizes the activities of the remaining 15 agencies.

Appendix A lists senior energy officials for each agency, including persons serving as temporary points of contact until Presidential appointees are in place. Appendix B includes a copy of the Presidential Directive. Appendix C includes a copy of the reporting guidance as well as DOE's Action Plan, both of which were sent to agencies to request these reports. Appendix D provides complete agency reports which describe all types of energy management activities— not only those aimed at electrical load reduction.

A. Federal Energy Management: Progress to Date

Managers at Federal facilities already realize the financial and operational benefits of planning for electrical load reductions. As the chart below illustrates, the Federal Government as a whole has reduced its energy consumption in buildings by 20.7 percent per gross square foot and is on track to achieve a 35 percent reduction by 2010. These efficiency gains reflect a corresponding reduction in demand on the electrical system. The experience gained at these facilities forms the basis of current agency efforts to respond to the need for local electrical use reductions.

Performance Toward Building Energy Reduction Goals



B. Recent Implementation Activities: Coordinated Federal Response to Address Peak Demand

The Department of Energy's Federal Energy Management Program (FEMP), under the Assistant Secretary for Energy Efficiency and Renewable Energy, has coordinated a number of activities to assist Federal agencies in responding to the Presidential Directive.

Guidance and Assistance

Upon the issuance of the Presidential Directive, FEMP prepared and distributed reporting guidance to the agencies (Appendix C). FEMP also distributed the Presidential Directive to members of the Federal Interagency Energy Management Task Force along with a proposed action plan for agencies to use as a model for their own activities.

FEMP also distributed information on the State of California's public benefits programs to encourage agencies to take advantage of these incentive programs. These programs are designed to encourage electricity end users to improve the energy efficiency of their operations, shift load away from peak periods, and expand the use of onsite (or distributed) generation.

Facility Assessments

FEMP also worked with agencies to dispatch special DOE *Assessment of Load and Energy Reduction Techniques* (ALERT) Teams to 25 of the larger energy-using Federal facilities in California. These ALERT Teams are identifying key short-term measures that energy managers can implement to reduce their peak load and thereby mitigate the risks of potential power outages and price volatility.

Agencies receiving assistance from these teams include the Department of Agriculture, the Department of Commerce, the Department of Defense, the Department of Energy, the

Department of the Interior, the Department of Transportation, the Department of the Treasury, the U.S. Mint, the Internal Revenue Service, the Department of Veterans Affairs, the Environmental Protection Agency, the General Services Administration, the National Aeronautics and Space Administration, and the United States Postal Service.

Working with site staff, the ALERT Teams remain on location for several days to identify and implement measures to reduce peak demand. They focus on no-cost and low-cost measures with an assessment of Distributed Energy Resources (DER) opportunities as well as longer term energy efficiency opportunities. The ALERT Teams also help facilities develop their peak load reduction implementation plans and can identify public benefit funds for energy projects.

One of the first audits was performed at the Marine Corps Air Station, Camp Pendleton, California between March 6-8, 2001. The audit identified a number of energy savings opportunities across the major building types, including resetting air conditioning controls to minimize operating hours and repairing or replacing malfunctioning equipment. The audit identified potential peak load reductions of approximately 7 percent, and overall annual cost savings of almost \$300,000, or 25 percent of the utility bill.

Reports that include recommended energy improvements are due from the ALERT Teams to all participating sites by July 1st. Upon completion of these assessments, DOE will hold a workshop to pass on the “lessons learned” to all Federal facilities.

California Energy Shortage Contingency Plan Exercise – May 24 Load Reduction Test

The State of California, through the California Energy Commission, conducted a one-day energy emergency exercise of the State’s Energy Shortage Contingency Plan on May 24, 2001. This exercise tested California’s automated Emergency Response Communications System (an automatic dialing system), and measured load reduction available from several sectors within the State – state agencies, local governments, the private sector, and Federal agencies. This exercise was designed to demonstrate the load reduction opportunity through implementation of very short-term conservation activities that can be taken when faced with a Stage 2 or Stage 3 energy emergency.

One hundred and fourteen Federal facilities representing 20 different Federal agencies and approximately 80 percent of the Federal load in California participated in the May 24th test. The test results are being analyzed to determine the magnitude of load reduction achieved. As part of this study, FEMP is collecting information from participating sites to determine what measures were implemented. According to the Federal facilities that participated in this exercise, their facilities could reduce peak demand by between 15 and 25 percent during electrical emergencies. FEMP is analyzing the test results to verify this potential for Federal demand reductions.

Distributed Energy Resources

In fiscal year 2001, DOE is providing over \$900,000 to assist nine Federal agencies in implementing 20 new distributed energy projects, many of which are located in California. Distributed energy resources (DER), or on-site generation systems, can help mitigate the risk of power outages and improve overall system reliability in supply-constrained areas. A DER system is typically a small, modular, decentralized, grid-connected or off-grid technology located

in or near the place where power is used. DER systems use renewable energy sources as well as natural gas and other fossil fuels. Facilities that take advantage of DER systems can benefit from improved power quality, stand-by power, peak shaving capabilities, and the efficiency of combined heat and power systems.

Thirteen of these Federal projects will receive direct funding assistance for equipment purchases and seven projects will be provided with technical assistance from DOE's National Laboratories. Energy technologies featured in these projects include advanced microturbines, advanced industrial turbines, combined heat and power systems, fuel cells, photovoltaic systems, wind energy systems, geothermal systems, hybrid systems, natural gas engine/generator sets, and flywheel energy storage systems.

C. Key Energy Conservation Measures

Federal agencies have implemented a wide variety of measures to reduce energy demand and plan additional energy reduction and peak load management strategies in response to the President's directive. The following section describes some ongoing energy management activities as well as measures that agencies have initiated or are planning in response to the Presidential directive. Examples taken from the agencies' reports are included to illustrate some of these energy-saving activities.

1. Conservation Measures and Load Reduction Strategies

Lighting Measures

Many agencies reported that they have already retrofitted inefficient fixtures with energy-efficient fluorescent lamps and electronic ballasts. Most large agencies also direct employees to turn off fluorescent lights when leaving an area; to use task lighting; and to turn off display and decorative lighting. At the Department of the Interior's Golden Gate National Recreation Center in California, nearly all general office lighting has been eliminated by using daylighting techniques. The Environmental Protection Agency's Seattle Regional Office worked with the General Services Administration and their building owner to install motion detectors and voltage timers to reduce the consumption of each light fixture by 35 percent.

Plug Loads: Computers, Equipment, Appliances

Most major agencies reported that they purchase ENERGY STAR® computers and office equipment and work to ensure that employees only use personal appliances on a limited basis. At the Department of Health and Human Services (HHS), the Program Support Center is analyzing a new policy that will make it mandatory for all ENERGY STAR® computers and copiers to be set on the highest energy saving mode. The Center is also considering replacing individual printers with central office printers. HHS is also considering prohibiting the use of water coolers with heating and cooling capabilities along with reducing the number of beverage vending machines.

HVAC Measures

Most major agencies reported that they employ prudent operation and maintenance techniques related to heating, ventilation, and air-conditioning. Major capital improvement projects upgrading HVAC systems have been undertaken and are underway at many agencies. For

example, in Fresno, California, the Internal Revenue Service is replacing air-conditioning units in certain facilities with heat pumps and turning off a portion of the facility supply and return air-handling systems during periods of reduced occupancy.

Process Loads

Eight major agencies reported that they are implementing process energy efficiency measures and scheduling high electricity use processes during off-peak periods. For example, the Department of Energy's Thomas Jefferson National Accelerator Facility in Virginia will retrofit its power supplies to allow adjustment of the input AC voltage, reducing the amount of electricity used to create microwaves. This project will save 8.6 gigawatt hours and \$270,000 annually. In an example of effective peak-shaving, NASA does not operate its wind tunnels at Ames Research Center in Iowa during peak energy usage times and coordinates all wind tunnel tests with the Western Area Power Administration during Stage 1, Stage 2, and Stage 3 emergency events.

Distributed Energy Resources

Most major agencies reported either using or investigating distributed energy resource (DER) strategies. For example, the U.S. Forest Service will add to its 500 photovoltaic systems now in use by installing additional photovoltaic systems in developed recreation areas, administrative sites, and other locations. The General Services Administration is investigating DER under its "Strategic Positioning" strategy to improve its load management capabilities with the deregulation of the electricity industry. Under this strategy, technologies will be pursued that increase GSA's ability to completely disconnect from the local distribution system and supply required load via local generators—increasing GSA's ability to reduce a measurable and verifiable portion of its load.

Thermal Storage

Six major agencies reported using or investigating thermal storage systems for shifting the consumption of electricity for cooling to off-peak periods. For example, the Department of Veterans Affairs has installed many thermal ice or water storage systems. The ice or chilled water is produced during non-peak hours when the electricity demand is at its lowest level and used the next day to provide air conditioning, resulting in reduced high demand charges.

Load Shedding and Energy Management Control Systems

Most major agencies reported adopting load shedding strategies and are employing energy management control systems to monitor loads and identify non-critical loads. As one example, the U.S. Postal Service's Pacific Area is in the process of implementing an Internet-based real-time electricity demand/consumption system that will provide information necessary to evaluate load reduction opportunities in California. Specific load reduction measures will be developed based on the information provided by this system. In another effort to reduce load, the U.S. Postal Service's Westchester District applied for and received a 50 percent matching grant of \$121,549 from the New York State Energy Research and Development Authority to perform a series of energy management initiatives in 125 postal facilities.

GSA employs an information technology infrastructure for facility management, known as "GEMnet", that will provide unprecedented energy management capabilities for multiple facilities throughout the region. This approach was first successfully implemented in the Phillip

Burton Federal Building in San Francisco, California in March, of 2001 and offered a wide range of facility management capabilities including:

- Centralized monitoring and control of multiple facilities,
- Data collection and the ability to identify building performance metrics,
- Facilitating the integration of multiple automation system providers, and
- Region-wide demand management and utility procurement.

The GEMnet system will be expanded to include numerous facilities throughout the region in the coming months.

2. Utility Program Participation

Most large agencies reported working with their local utility providers to assist them in assessing their needs for load reductions. Many agencies participate in peak load reduction incentive programs where they can take advantage of state public benefits funds to implement load reduction projects. Under the Department of Transportation, the Maritime Administration's Suisun Bay Reserve Fleet in California uses its standby diesel generators when notified by their utility, Pacific Gas & Electric, of an impending shut down. They also assist with the balancing of loads during peak periods by using timers to activate the dehumidification machines on their ships only during non-peak periods.

3. Outreach

Most agencies reported undertaking outreach and energy awareness activities as well as training to encourage energy conservation. For example, in fiscal year 2001, the Department of Defense set a goal to train over 1,900 personnel through either commercially available or in-house-generated technical courses, seminars, conferences, software, videos, and certifications. Most agencies distribute periodic e-mail messages to encourage employees to turn off lights and computers and implement other efficiency practices. Agencies also post notices near light switches and computer equipment, and disseminate energy awareness materials to educate employees about smart energy management practices in the work place and at home.

Summary

Federal agencies have accomplished much to date and have demonstrated a broad commitment to leadership by example in their responses to the President's directive concerning their plans for further energy conservation and peak load reduction efforts. As the following figure illustrates the types of activities undertaken by each of the 19 major agencies, as reported in their responses to the President's directive. Detailed discussions of each of these major agencies' activities immediately follow in descending order of overall energy consumed. Activities of the 15 other agencies are discussed more briefly in section III.

II. HIGHLIGHTS OF AGENCY ACTIVITY

A. Department of Defense (DOD)

Recent Implementation Activities

DOD has developed a Nationwide Electricity Reduction Plan to meet the challenge of potential electricity shortages. In 2000, military installations consumed nearly 26 million megawatt-hours and had a non-concurrent summer peak demand of more than 4,800 megawatts. The Defense Components have identified potential conservation measures, investment projects and fixed and mobile generation capacity that could reduce load nationwide by more than 600 megawatts, an almost 13 percent reduction from summer 2000 levels. Full, nationwide implementation of the electricity reduction plan would require an additional \$114 million in appropriated funding over the next two years for investments, \$14 million per year to operate generators for 200 hours of peak shaving and nearly \$462 million in private-sector investment.

Conservation Measures

Conserving energy is important to DOD because it saves money, decreases demand on energy supplies and reduces greenhouse gas emissions harmful to the environment. In FY 2000, DOD spent over \$2.4 billion to buy energy for its installations, consuming over 243 trillion Btu. Since 1985, DOD has reduced the energy it consumes in its buildings by 23 percent on a per square foot basis. DOD intends to accomplish the President's directive by implementing the following broad strategies:

- *Energy Conservation Measures* - Implement low-cost, no-cost energy conservation measures to reduce energy use nationwide and reduce electricity load during periods of peak demand in regions where electricity shortages are imminent.
- *Energy Reduction Investments* - Execute cost-effective projects to reduce energy consumption with direct appropriations and alternative financing through Utility Energy Service Contracts (UESC) and Energy Savings Performance Contracts (ESPC), and procure energy-efficient products and services.

Defense Components will invest in energy-efficient technologies, such as high efficiency lighting and ballasts, energy-efficient motors, and use of packaged heating and cooling equipment with energy efficiency ratios (EER) that meet or exceed Federal criteria for retrofitting existing buildings. Information technology hardware, computers and copying equipment are acquired under the ENERGY STAR® Program using GSA Schedules, Government-wide contracts, or service contracts. The DLA distribution centers serve as the focal point of DOD's program to procure energy efficient products and will continue to be a leader in increasing the use of these products by such programs as their two-for-one compact fluorescent light initiative. Procuring agents, including users of Government credit cards, continue to be encouraged to procure ENERGY STAR® products and other products in the top 25 percent of energy efficiency.

Partnerships with the private sector through Utility Energy Service Contracts (UESC) and Energy Savings Performance Contracts (ESPC) are a crucial tool for financing energy efficiency measures. These allow installations to improve their infrastructure and pay for energy efficiency

measures through the savings generated by the project over time. For FY 2001, DOD is striving to award, through a decentralized approach, more than 110 UESC and ESPC task orders/contracts to produce estimated annual savings of 2.68 trillion Btu.

These contracts will include infrastructure upgrades and new equipment to help the installations reduce energy consumption. Projects consist of new thermal storage systems, chillers, boilers, lights, motors, and energy management control systems (EMCS). For FY 2001, Congress appropriated \$15 million for the Energy Conservation Investment Program (ECIP) and added \$4 million to assist the ESPC process. The FY 2002 budget request contains \$35 million for ECIP.

Load Reduction Strategies

Initiatives for industrial facility efficiency improvements utilizing fuel switching, waste heat usage, and thermal storage units will continue. Dual-path air conditioning to control humidity as an alternative to natural gas or propane fired desiccant dehumidification systems, heat-pipe technology for dehumidification, and domestic hot water heat reclaim systems will continue to be utilized whenever possible in DOD's commissary stores. Exploration in efficiency opportunities in non-fossil fuel energy technologies such as geothermal ground source heat pumps and photovoltaics will also be continued.

DOD encourages the Components to combine cooling, heating, and power systems in new construction and/or retrofit projects when cost-effective. Planned DOD projects include large photovoltaic arrays, solar lighting for parking lots and jogging trails, wind turbine generators and fuel cell demonstration projects.

Utility Program Participation

DOD is continuing efforts to privatize its utility systems by September 30, 2003. This initiative is designed to allow the Services to manage resources rather than utility infrastructure—using the expertise and investment capital of local utilities and private-sector entities to modernize, operate, and maintain their utility systems more efficiently and effectively. Increased energy efficiency will be an important side-benefit from this program as privatized utility systems become better maintained and incorporate the latest technological innovations.

Outreach

Awareness and training programs are important for DOD to achieve and sustain energy-efficient operations at the installation level. For FY 2001, DOD's goal is to train over 1,900 personnel through either commercially available or in-house-generated technical courses, seminars, conferences, software, videos, and certifications. Additionally, DOD personnel have been encouraged to attend the Energy 2001 conference in Kansas City, Missouri. DOD is continuing an active program to identify and procure energy-efficient products through the Defense Logistics Agency (DLA). DLA and General Services Administration (GSA) product catalogs, featuring many energy efficient products, as well as the Construction Criteria Base (available on CD-ROM and the Internet), are widely distributed and used.

B. Department of Energy (DOE)

Recent Implementation Activities

All of DOE's major energy using sites in California participated in the California Energy Commission's Emergency Load Reduction Test to demonstrate their peak load reduction capabilities. This includes the largest DOE energy-using site in California, the Lawrence Livermore National Laboratory.

All DOE California sites have developed electricity usage curtailment plans that address the actions required at each of the three electrical emergency stages. The major sites affected by the rotating outages are Lawrence Berkeley National Laboratory (LBNL), Lawrence Livermore National Laboratory (LLNL), Stanford Linear Accelerator Center (SLAC) and Sandia National Laboratory-California Site (SNL-CA), all of which receive power from and are notified of impending electrical emergency alerts from the Western Area Power Administration (WAPA).

LBNL notifies all staff of alerts by e-mail within 10 minutes of receiving notification from WAPA. At the Stage 1 level, staff turn off all non-essential experimental equipment, lights, computer monitors and other office equipment. At the Stage 2 level, staff turn off all non-critical experimental equipment, in addition to the lights and equipment turned off during a Stage 1 alert. At the Stage 3 level, staff turn off all non-critical equipment and all office air conditioning.

LLNL notifies all staff of alerts by e-mail through its Public Relations Department. Staff actions in response to each alert level are similar to those described for LBNL above.

DOE's major energy-using sites are required to have emergency conservation plans for 10, 15 and 20 percent reductions from the previous fiscal year in gasoline, other oil-based fuels, natural gas, or electricity, for periods up to 12 months. These plans are designed to achieve the desired level of energy use reductions with the least impact on the site's mission and operating costs. All DOE facilities in California will update existing curtailment plans for electricity load reduction in accordance with the Plan of Action distributed with the President's directive.

Two DOE sites in California, LBNL and LLNL, will participate in the ALERT Team identification of additional demand reduction measures.

Conservation Measures

Peak demand at DOE's major energy using sites in California has been reduced significantly through implementation of energy conservation measures. These measures, which include the upgrading of lighting, central chiller and pumping systems, have not only reduced annual energy consumption but also peak electrical load demand.

In FY 2001, DOE received \$2 million under the Departmental Energy Management Program budget request. This funding will be leveraged with additional funding from the DOE sites to support both energy retrofit projects and to implement strategies to accomplish the requirements of the new Presidential directive. The 16 new energy retrofit projects that DOE expects to fund will save 13.4 gigawatt hours of electricity, 31.6 billion Btu of oil or natural gas, and 55 million

gallons of water. These savings represent approximately \$750,900 in annual cost savings. Examples of these projects include:

- Klystron Energy Reduction through the use of Variable Voltage Cathode power Supply LED Modulating Anode Project at the Thomas Jefferson National Accelerator Facility (TJNAF). TJNAF will retrofit 43 klystron power supplies to allow adjustment of the input AC voltage. Klystron power supplies convert the incoming electricity to microwaves.
- Upgrade of the Energy Management System and Lighting Systems Project of the Engineering Research Office Building at the Idaho National Engineering and Environmental Laboratory (INEEL) in anticipation of applying for the ENERGY STAR Building label. INEEL will install occupancy sensors and light sensors to automatically turn off lights that are not needed.
- LED Replacement for Safety Locator Lighting Project at the Brookhaven National Laboratory (BNL). BNL will replace existing incandescent lamps and fluorescent lamps with a lifetime light emitting diode (LED) bulb, resulting in both energy and maintenance savings.
- Micro-Turbine Demonstration Project at the Brookhaven National Laboratory (BNL). KeySpan Energy, the local natural gas supplier will cost-share the project and will install the micro-turbine.
- Lighting Retrofits for 318, 320, and 350 Project at the Pacific Northwest National Laboratory (PNNL). PNNL will retrofit 1,500 fluorescent fixtures with more efficient electronic ballasts and lamps.

Measures are also taken to reduce process loads, a significant portion of DOE's energy profile. As noted earlier, all non-critical experimental equipment are turned off at the Stage 2 alert level. SLAC has also reduced its electrical load by deferring activities that involve the development and testing of klystrons. In addition, DOE has projects underway at TJNAF and the Fermi National Accelerator Laboratory to reduce energy consumption of the accelerators at both facilities.

Load Reduction Strategies

The Los Alamos National Laboratory load shedding plan reduces electricity demand in four stages up to 50 percent of total load. The Rocky Flats Environmental Technology Site power curtailment plan reduces electric demand in three phases by 35 percent of total load.

Argonne and Brookhaven National Laboratories both employ thermal storage systems to avoid additional charges for peak load electricity.

For FY 2001, DOE will be funding two solar energy projects for special applications. DOE will also encourage energy service companies proposing energy savings performance contract projects to bundle renewable energy technologies with other more cost effective energy efficiency technologies in order to increase the installation of renewable energy technologies.

DOE will also encourage energy service companies proposing energy savings performance contract projects to bundle renewable energy technologies with other more cost effective energy efficiency technologies in order to increase the installation of renewable energy technologies.

In addition to the solar and renewable projects, DOE has funded micro-turbine projects at its Brookhaven National Laboratory and Sandia National Laboratory.

Utility Program Participation

SLAC has an interruptible rate contract with WAPA, and is required upon request by WAPA to reduce its load from 50 to 65 megawatts down to no greater than 21 megawatts during a power shortage.

The DOE headquarters facilities participate in Potomac Electric Power Company's (PEPCO's) load curtailment program by operating diesel generators at the Germantown complex, shutting down escalators and selected elevators at the Forrestal building, and alerting employees to reduce electric loads under their control (lights, personal computers, and appliances). Peak demand has been reduced by about 20 percent since 1990 through energy efficiency improvements in these facilities.

The Argonne National Laboratory has participated in Commonwealth Edison's load reduction program since 1992. In response to requests from the utility the lab reduces end use electrical load, combined with operation of emergency generators, saving over \$850,000 through 2000.

The Brookhaven National Laboratory meets regularly with their utility to discuss electric loads and future requirements and set monthly demand targets. Past demand reduction programs have saved over \$1.5 million. The lab has pledged demand reductions of 12 megawatts for summer 2001, the largest reduction in the utility's service area.

The Princeton Plasma Physics Laboratory reduces electric loads by up to 4.5 megawatts, with 30 minutes notice from the utility, saving \$11 million since 1986.

The Savannah River Site initiated its "Peak Alert" program in 1992, to achieve reductions in site electric demand. "Peak Alerts" are issued in response to requests from the utility to reduce electric demand, as well as to control electricity demand and costs.

Outreach

DOE facilities have distributed bulletins to all personnel explaining the Presidential directive with an appeal to continue conservation efforts.

C. Department of Veterans Affairs (VA)

Recent Implementation Activities

Several VA sites in California participated in the California Energy Commission's Emergency Load Reduction Test to demonstrate their peak load reduction capabilities.

The Energy Management Division at VA is responsible for ensuring that all medical centers develop and implement a comprehensive energy management program to reduce the overall energy usage in the operation and maintenance of building and facilities by 2010 to meet their established energy consumption targets in Btu per square foot. VA has a comprehensive energy management program that includes many energy conservation elements or activities that are periodically transmitted to the medical centers for their implementation.

Two VA facilities, one in Los Angeles and another in San Diego, California have been targeted for potential audits by DOE ALERT Teams.

Conservation Measures

Since 1975, VA has invested about \$200 million on viable energy related cost effective projects which have produced cost avoidance of about \$300 million in various utilities costs. Energy savings performance contracting (ESPC) and utility contracts offer a means of achieving the energy reduction goal at no capital cost to the Government. VA has awarded many ESPC contract task orders to upgrade the existing air conditioning systems, lighting systems, energy management control systems, and infrastructure and financed the projects with the savings from reduced utility bills.

VA's building retrofit projects include the installation of state-of-the-art energy management control systems, modifications of the existing HVAC systems, replacement of existing inefficient electric motors with energy efficient motors, installation of variable frequency speed controllers, steam trap replacement, improvement of boiler efficiency, retrofitting or replacing existing lighting fixtures, installation of electronic ballasts, power system improvements, and building envelope improvements.

VA has very strict HVAC design standards for designing new construction and retrofitting existing systems. Energy management control systems are installed to maintain adequate temperatures in various areas, duty cycle the equipment, turn off equipment in the unoccupied areas, and vary the speed of motors under partial load conditions. Also, VA has installed many thermal ice or water storage systems. The ice or chilled water is produced during off peak hours when the demand is at its lowest level and used the next day to provide air conditioning, resulting in reduced high demand charges.

Load Reduction Strategies

Most VA facilities have emergency generators designed to maintain the equipment that serve the most critical areas of the hospital. These generators have been used to shave peak electrical load.

Most VA medical centers in California have completed comprehensive energy audits under ESPC arrangements and completed the energy conservation measures identified by energy service companies to reduce their electrical consumption. The VA medical center in San Diego has recently completed a comprehensive energy audit and is about to award a task order to an ESPC contractor. This medical center has an 880-kilowatt cogeneration plant and under the ESPC contract the capacity of this plant will be increased to 4,072 kilowatts. This will give the medical center enough capacity to operate independently without depending upon the utility provider.

Utility Program Participation

VA awarded a contract to a division of Southern California Edison to develop an electricity savings program at the West Los Angeles VA Medical Center. The project retrofit existing lighting fixtures and air conditioning systems and the entire project cost was funded from the savings in electricity produced by the more energy efficient systems.

Outreach

In order to train and educate medical center engineering staff, VA developed a consolidated handbook of energy conservation methods, concepts, and evaluation procedures for facility engineers. Continuing with the philosophy of developing in-house expertise, VA conducted many regional workshops and teleconferences. All of the energy awareness materials received from Department of Energy's "You Have The Power" program are distributed nationwide to the medical centers.

VA has a very active energy awareness program. The medical centers are informed about state-of-the-art technology and other energy-conserving techniques via national engineering conference calls, engineering conferences, and other means. As part of this program, the employees are consistently reminded to turn off the lights when leaving an area for than one minute. Conference rooms, large meeting rooms, and restrooms have motion-sensing lighting controls. Also, light sensors have been installed to turn the lights off if daylight provides an adequate level of lighting. Employees turn off general lights when using task lighting, and turn off printers, monitors, computers and personal appliances when leaving for the day.

D. United States Postal Service (USPS)

Recent Implementation Activities

The U.S. Postal Service report focused on activities in its Pacific and New York Metro Postal Areas and noted that it has also developed plans of action in other postal areas. Although it is not subject to the President's directive to Federal agencies, USPS continues to coordinate with DOE's Federal Energy Management Program on energy conservation strategies. For example, USPS participated in the May 24th load reduction test in California and DOE's ALERT Teams are surveying three of the larger postal facilities in California.

The USPS Pacific Area has established standard operation procedures in the event that the California Independent System Operator (CALISO) directs utility companies to invoke power interruptions.

Conservation Measures

USPS facilities are continually improving their energy systems with more efficient technologies. These include replacing T-12 magnetic ballast fluorescent lamps with energy-efficient T-8s with electronic ballasts, installing digital microprocessor controls in boilers, and replacing old chillers with R-22 refrigerant.

The USPS New York Metropolitan Area projects focused on quick, high-payback replacement activities such as the installation of T-8 fluorescent tubes and electronic ballasts. Con Edison

Solutions *Lighten Up* program included upgrading the complete lighting infrastructure at 31 facilities in the Triboro area (Queens, Brooklyn and Staten Island) of New York City, 14 facilities in Westchester County, New York, and seven in central New Jersey.

During FY 1999, a single shared energy savings contract was awarded to Con Edison Solutions for the entire New York City District, which includes 109 facilities in Manhattan and the Bronx that are located in the Consolidated Edison, Inc. service territory. All facilities involved in Phase 1 (high pay-back lighting projects) of this massive project will be either surveyed or the construction completed this fiscal year. Phase 2 (mechanical and building envelope opportunities) has already been completed for FDR and Times Square Postal Stations, and further savings and load reduction are being contemplated with the installation of high-intensity discharge (HID) lighting. Morgan Processing and Distribution Center is being surveyed for HID lighting and peak shaving capabilities with the use of computerized lighting systems which will utilize dimmable ballasts, during peak load periods. Billing analysis is also underway in the New York City District, to further identify conservation and peak shaving opportunities.

Load Reduction Strategies

The USPS Pacific Area is in the process of implementing an Internet-based real-time electricity demand/consumption system that will provide the information necessary to evaluate load reduction opportunities in California. Specific load reduction measures will be developed based on the information provided by this system.

The USPS Westchester District applied for and received a \$121,549 grant from the New York State Energy Research and Development Authority (NYSERDA) to perform a series of energy management initiatives in 125 postal facilities. NYSERDA is providing 50 percent matching funds for programs in three areas:

- Energy Operations Management - Planning, surveys, monitoring, and staff training,
- Rate Analysis and Aggregation - Analysis of load shape, rates, and remote monitoring, and
- Energy Feasibility Studies - Comprehensive energy audits and technical assistance.

For years now, the local utilities have had a system of communications with the local USPS facility maintenance managers, as well as Area personnel, in order to implement emergency load reductions. Since the major sorting time for postal operations is during non-peak hours (nightly), most of the emergency calls during peak hours have a minimal effect on USPS operations.

Some larger USPS facilities have back up generation for life, health, and safety-driven reasons (emergency lights and elevators). Since each building is wired differently and major processing times are off-peak, USPS has already segregated power needs by mission critical and non-critical systems.

In conjunction with DOE's Oak Ridge National Laboratory, surveys are being conducted at larger USPS facilities in New York, Texas, and California to identify cost-effective applications for cogeneration technology.

The USPS Pacific Area has initiated a procurement of a 100-kilowatt solar photovoltaic system for use in the Los Angeles Department of Water and Power service territory. It is anticipated that

this system will be operational by the end of 2001. The Pacific Area is also investigating PV opportunities throughout the area, and will be partnering with utilities in California and Hawaii and with the University of Hawaii. In addition, the USPS is in the process of negotiating with Republic Landfill for the development of a 2.5 megawatt landfill gas-to-electricity system to be located on the site of a large southern California processing and distribution center.

Utility Program Participation

The USPS gained experience in procuring electricity through competitive contracting in California, Pennsylvania, and New York. As more states open their markets through deregulation, the USPS will evaluate cost saving opportunities on a state-by-state basis.

The USPS New York Metropolitan Area energy team used the USPS's Shared Energy Savings performance contracting program to partner with Con Edison Solutions, the competitive energy services subsidiary of Consolidated Edison, Inc., to reduce its energy costs by almost \$790,000 in FY 2000. Planning and coordination efforts were initiated for another \$832,000 in annual savings in FY 2001.

Outreach

USPS has developed awareness and training programs to meet the needs of its facility energy coordinators and others involved with meeting the goals of the energy program. Training programs are designed to provide an in-depth understanding of the source of energy consumption in USPS operations, the availability of energy efficient technology, and potential improvements in procurement and maintenance of key USPS supplies and equipment.

E. General Services Administration (GSA)

Recent Implementation Activities

GSA Region 9 is participating in the California Independent System Operator (ISO) Demand Relief Program, promising to shed 1.22 megawatts when requested. GSA's goal is to achieve the higher reductions during stage 2 and 3 emergency alerts. GSA participated in the May 24th Energy Curtailment Test undertaken by the California ISO to measure the impact Federal facilities have on the grid when they conserve.

Emergency electricity load reduction plans are established and implemented on an individual building basis. To enhance these existing emergency electricity reduction plans, GSA's Energy Center of Expertise has instituted a comprehensive program entitled "Tactical Curtailment." This program will determine the effectiveness and appropriateness of a number of specific actions GSA will implement in California and nationwide.

GSA has the capability to monitor energy usage in every Government-owned building nationwide. While the processing of this information is delayed several weeks, GSA nonetheless will be able to determine the quantity of savings occurring in States like California during critical months. In GSA Region 9, an incentive program for Field Offices who clearly show reductions in consumption is planned.

One GSA facility is targeted for audits by DOE's ALERT Team, GSA will review their recommendations and seek funding to implement all viable projects.

Conservation Measures

Many energy conservation opportunities have been identified and are currently being implemented or waiting for funding. At the national level, the GSA Energy Center of Expertise administers a comprehensive energy retrofit program. Since 1990, GSA has invested \$331 million in targeted energy retrofits. As a result of these investments, GSA has reduced energy intensity (Btu per gross square foot) in FY 2000 by 20 percent compared to FY 1985.

Load Reduction Strategies

GSA's proactive response to the California crisis is evidenced by the funding of a unique technology in the San Francisco area. GSA Region 9 and ESS Engineering have created an information technology infrastructure for facility management that will provide unprecedented energy management capabilities for multiple facilities throughout the region. The first GEMnet network was successfully implemented in the Phillip Burton Federal Building in March of 2001. The GEMnet network will be expanded to numerous facilities throughout the region in the coming months and offers a wide range of facility management capabilities including:

- Centralized monitoring and control of multiple facilities,
- Data collection and the ability to identify building performance metrics,
- Facilitating the integration of multiple automation system providers, and
- Region-wide demand management and utility procurement.

Initially, 11 GSA buildings in Region 9 were linked via the GEMnet network and nine of those facilities were operational by the end of May. Additionally, demand reduction strategies for three San Francisco facilities will be underway by the first week of July. If the project continues to proceed with the same level of success, 12 additional facilities in Region 9 will be linked to GEMnet, for a total of 23 facilities throughout Region 9.

This program serves as a tactical plan within GSA's larger strategy, entitled "Strategic Positioning," to improve its load management capabilities under deregulation of the electricity industry. Under this strategy, technologies will be pursued that increase GSA's ability to completely disconnect from the local distribution system and supply required load via local generators—increasing GSA's ability to reduce a measurable and verifiable portion of its load.

Several metering demonstrations nationwide are underway to determine which level of technology is capable of recording interval consumption data. This metering technology will have the potential for providing integrated hourly kilowatt-hour values for market settlement purposes, i.e., metering that is capable of recording integrated hourly values for the actual net generation of the generator or other distributive technology.

To enable GSA to better respond to electricity emergency reduction situations, building level information is being gathered that identifies where GSA has the capability to reduce load on average of 100 kilowatts. Once this information is produced, it will be used to determine where GSA's capabilities can be improved or acted upon in a unified manner to increase the impact of the curtailments.

Utility Program Participation

Through its legislative authority to issue utility service agreements, GSA enjoys good communications with local utilities and national utility associations that facilitate effective emergency electricity reduction measures.

GSA Region 3 has joined with Baltimore Gas and Electric (BGE) and Powerweb Technologies to launch the Omni-Link Internet Energy Platform in GSA facilities in the Baltimore area. The Omni-Link technology is designed to give customers an opportunity to save money by optimizing energy management via the Internet. Through this platform, GSA will have the ability to monitor energy prices, perform analyses to determine how various factors impact energy costs and curtail energy load based on real-time prices with pager notification from BGE.

The initial phases of this project began in February of 2001 and the pilot program will run through the end of the year. Omni-Link gives GSA the ability to improve energy management and procure energy at the lowest available prices.

Outreach

As a participant in the DOE's "You Have the Power" program, GSA has arranged to circulate for presentation during the months of May and June 2001 approximately 3,000 electricity reduction posters in major Federal buildings. Entitled "Switch the Time of Your Peak Energy Use," these posters are targeted to inform the general building population how to reduce mid-day demand to prevent power outages. The posters offer specific actions building occupants can take to reduce energy consumption associated with lighting, equipment, and air conditioning loads. GSA's Energy Center of Expertise provides DOE with direct mailing information for distribution to all GSA regional energy coordinators, who, in turn, further distribute posters throughout regional organizational offices.

GSA will communicate to employees, tenants and outside parties the status of energy supplies and obtain their assistance in voluntarily reducing consumption and to encourage them to accept GSA's curtailment efforts as instituted by manipulation of building operating equipment. This is being marketed through e-mail, posters, and letters.

The GSA Energy Center presented at numerous sessions and exhibited a booth focusing on energy reduction measures and strategies at Energy 2001 in Kansas City, Missouri June 3-6, 2001. GSA is also planning a series of regional energy crisis awareness workshops to occur over the next 12 months to replicate a Northwest Energy Crisis workshop planned for July 18th, 2001.

F. Department of Justice (Justice)

Recent Implementation Activities

Responding to the President's directive, the Justice Department is taking appropriate actions to conserve energy use and outlined in its report numerous no-cost, low-cost actions for immediate implementation. These actions are being taken at the Main Justice headquarters facility and field

locations, especially where electricity shortages are already occurring or expected to occur, and during periods of peak demand.

The Plan of Action for emergency electricity reductions for Main Justice is under review and being revised, consistent with the ongoing renovation underway at the facility. The Drug Enforcement Administration is establishing a plan to reduce lighting, raise indoor temperatures, shut down the HVAC system after 6 p.m. daily and on holiday and weekends, and improve employee energy awareness. Other Justice field activities have been encouraged to review their plans.

Justice facilities in California were encouraged to participate in the State's May 24th Emergency Load Reduction Test.

Conservation Measures

The Justice Department will implement the recommended Action Plan. Its employees will be advised to implement conservation measures such as turning off lights and equipment when they leave.

Facility managers at Justice will be advised to employ load reduction strategies such as pre-cooling buildings and allowing the temperature to drift up during peak demand period.

Load Reduction Strategies

All components of the Justice Department have been directed to undertake actions such as installing sub-meters and thermal storage systems, purchasing interruptible power, or adding on-site generation.

Utility Program Participation

The headquarters building engineers have contacted the Potomac Electric Power Company to re-install load curtailment equipment that was removed during Phase I renovation work at the Main Justice facility. In the past, Justice had participated in PEPCO's Curtailable Load Program to reduce peak demand upon request of the utility. Justice field offices and facilities have been encouraged to establish or maintain communications with their local electrical utilities and to participate in load curtailment programs to the maximum extent possible within mission responsibilities.

Outreach

Justice will establish programs to raise energy awareness of its employees, consisting of:

- a plan to alert headquarters' employees to take appropriate action during expected high demand days through e-mail, voice mail, and other means;
- periodic conservation reminders emphasizing use of lighting and efficient computer and equipment use; and
- promotion and encouragement of conservation in employees' own homes.

G. National Aeronautics and Space Administration (NASA)

Recent Implementation Activities

NASA issued a Headquarters letter on August 18, 2000, requesting that NASA Centers in California take immediate action to reduce nonessential electricity use by implementing short- and long-term load-reduction measures. This was followed by another Headquarters letter on February 6, 2001, providing guidance on emergency energy-reduction measures to all NASA Centers and component facilities.

NASA facilities participated in the California Energy Commission's energy emergency exercise test of its automated Emergency Response Communications System on May 24, 2001.

NASA will host a DOE ALERT Team visit at Goldstone Deep Space Communications Complex in Mojave, California.

Conservation Measures

Voluntary measures have been implemented to reduce electrical load at NASA Centers in California, including use of emergency generators, reduced interior and exterior lighting levels, reduced operating hours for building heating, ventilating, and air-conditioning systems, and adjusted indoor space temperatures.

NASA does not operate the wind tunnels at Ames Research Center in California during peak energy usage times and coordinates all wind tunnel tests with the Western Area Power Administration during Stage 1, Stage 2, and Stage 3 emergency events.

Load Reduction Strategies

NASA operates electrical generators at the Goldstone Deep Space Communications Complex up to three hours a day to help relieve load on the California power grid and is investigating options to extend generator operating hours and to sell power back to the grid.

NASA is also taking the following actions to install new solar hot water, solar electric, solar outdoor lighting, small wind turbines, fuel cells, and other off-grid alternatives:

- Develop guidance for Centers and component facilities to include provisions for the purchase of electricity from clean, renewable, and/or naturally occurring sources as a component of future electricity procurements.
- Issued agency guidance for planning and implementing renewable energy projects.
- Installed a 5.5 kilowatt photovoltaic power system on the roof of Building N-245 and a small wind turbine generator at Ames Research Center.
- In cooperation with the DOE Million Solar Roofs program and the Florida Solar Energy Center, a demonstration is underway of a new technology for solar desiccant dehumidification system for a photographic film storage facility at Kennedy Space Center.

The system will use solar energy and waste heat recovery to regenerate a silica desiccant dehumidification wheel.

- A study has been initiated to determine the feasibility of a megawatt-scale grid-integrated photovoltaic power system for the Dryden Flight Research Center.

Utility Program Participation

NASA is working with Mississippi Power Company to investigate the feasibility of gas turbine and/or fuel cell power generation technology for Stennis Space Center through a planned utility energy service contract.

Outreach

NASA established emergency notification procedures to alert employees and contractors to conserve energy when Stage 3 emergencies are anticipated in California. The agency also has an active energy awareness program.

H. Department of the Interior (Interior)

Recent Implementation Activities

Great emphasis is being placed on increasing employee awareness of energy management and conservation. Secretary Norton has instructed supervisors to direct their managers to adopt aggressive strategies to implement the President's directive and coordinate with state and local government agencies to minimize the use of electricity in Interior's buildings and facilities.

In California, Interior's three largest net energy consumers (Golden Gate National Recreation Area, Yosemite National Park, and the U.S. Geological Survey's (USGS') Western Regional Office), have implemented a wide range of measures to conserve energy. Actions range from reducing light levels in buildings to implementing the real-time tracking of energy use. Preliminary reports indicate that these three facilities may save as much as 15 percent, compared to the previous year's energy consumption.

The USGS is participating with other GSA-owned facilities in emergency load-reduction plans and emergency load-reduction testing, as part of a broad effort to broker the lowest energy rates possible with utility companies.

Conservation Measures

To expedite conservation measures, administrative procedures are being streamlined and metrics are becoming more comprehensive. Planned actions include the installation of energy monitoring systems at larger Interior facilities nationwide to accurately track energy consumption on a real-time basis.

At the USGS, monitoring systems are being installed on gas and electric meters, and an energy audit will be conducted with the assistance of the Bonneville Power Authority. At Golden Gate, nearly all general office lighting has been eliminated by substituting daylighting. Compact fluorescent lights have been installed in Park housing, and an aggressive building evaluation program has been instituted to identify additional energy conservation measures. Yosemite

National Park has implemented power-save functions on office equipment, installed T-8 lamps and motion sensors in all campground comfort stations, shifted water pumping operations to off-peak times, and implemented an aggressive monitoring program to measure and document energy consumption by building or meter.

At the USGS Western Regional Office, a variety of energy conservation measures have been implemented, including reducing light levels during daytime hours, shutting down office and lab systems at night, and taking advantage of natural air circulation.

Load Reduction Strategies

The strategies for Interior bureau facilities will include specific identification of short and long term electricity load reduction measures, monitoring of total facility demand, strengthened coordination with local utilities, and enhanced communications with employees about the benefits of and best practices for increased energy efficiency.

Interior is monitoring total facility demand and the demands for individual major loads. Weather forecasts are monitored to predict high demand days and managers are communicating with local utilities to assess needs to reduce load.

The Bureau of Land Management is using photovoltaic systems nationwide for a variety of activities, from pumping water, to providing power to facilities, to lighting parking lots. Because of their remotely located facilities which do not have access to the grid, BLM is seeking further opportunities to expand the use of solar-powered systems. Grid-connected photovoltaic systems also are being used to offset utility costs. Seven such systems will be installed in FY 2001.

At the Bureau of Indian Affairs, ground source heat is being used in the design of new schools to both heat and cool the buildings. Geothermal energy has been in use at a dormitory for several years.

To reduce electric grid load requirements in the National Parks, the Park Service, with the assistance of DOE, plans to fund 30 solar powered systems and other energy conserving measures in Parks nationwide in FY 2001. The cost for these projects will be more than \$2 million, and will be financed in partnership with DOE, state governments, and industry. The Park Service Pacific West Region has instituted a new multi-year program of investing heavily in local renewable energy projects and increased conservation. Approximately 400 megawatts per year will be offset once the currently-approved solar projects are completed.

The Fish and Wildlife Service, which produces self-generated electricity from a number of solar photovoltaic, solar thermal, and wind energy systems, and has many operational geothermal heat pumps, is working with the National Renewable Energy Laboratory on a renewable energy opportunity assessment of 20 service field stations. When the project is completed, the Service will evaluate the recommendations and implement cost-effective projects within funding limitations.

Utility Program Participation

In California, the National Park Service is aggressively seeking partnerships and opportunities to fund energy saving activities and technologies through rebates, special funding for energy conservation projects, and other revenue streams.

Outreach

Interior bureau energy management responsibility includes supporting energy managers' participation in energy management training courses. Interior plans to sponsor half-day training workshops in the Washington, DC area with DOE's assistance. A workshop is scheduled for the summer of 2001 which will address the impact of energy utility restructuring, energy cost volatility, and the need to budget accordingly.

I. Department of Transportation (DOT)

Recent Implementation Activities

Seven Coast Guard facilities in Northern California represent over 50 percent of the DOT square footage in California. These facilities were registered to participate in the May 24, 2001 exercise to test public sector load reduction capabilities and alert system. The largest of these facilities, through the coordination of over 70 personnel, tested both their internal communications and load reduction plans.

The Coast Guard regional headquarters in Alameda, California, the largest agency facility in the State, has taken an active role in the preparing load reduction measures to help provide grid relief during Stage 2 and Stage 3 alerts. This role involves the development of load reduction procedures for its specific location as well as assisting other California facilities in preparing their responses. Careful attention is required during the formation of these reduction plans to protect the mission execution ability of the units while at the same time providing vital grid relief.

Conservation Measures

Overall, 75 percent of DOT facilities have been audited for energy and water efficiency. DOT organizations continue to perform audits to identify and implement cost effective conservation projects in all facilities. Since large facilities with large energy usage were audited early in its 10-year audit program, primarily only smaller facilities remain to be audited.

Load Reduction Strategies

Several Federal Aviation Administration facilities have taken actions, where possible, to shift electrical load to non-peak periods. The FAA Technical Center intends to implement the following actions to lower the electrical consumption, during peak load emergencies:

- Raise the temperature of the summer indoor air space cooling from 75° F to 78° F. This will reduce chiller electrical consumption.
- Turn off all return air fans to reduce electrical consumption.
- Increase the nighttime set back schedule for HVAC operations.

The Federal Highway Administration is prepared to curtail electrical loads at its two facilities. Some of their planned actions include use of daylighting, pre-cooling buildings, chilled water

temperature shifts, duty cycling of air handling units, prohibiting use of space heaters, and emergency generator operations.

DOT has pursued renewable energy projects where they are cost effective. It is DOT's policy to utilize renewable energy sources wherever it is economically practical. FAA had 29 solar units and USCG had 60 that were registered with the Million Solar Roofs program in FY 2000.

USCG installed 60 solar hot water systems in Honolulu, HI and 99% of buoys now use solar power. The St. Lawrence Seaway Development Corporation (SLSDC) also utilizes solar power for all its fixed and floating aids to navigation. SLSDC is in the process of using solar power for their visibility and weather monitoring equipment.

The United States Merchant Marine Academy is participating in a peak load reduction program through the local power authority. By shedding selected electric loads nearly 600 kilowatts can be removed from service with minimal inconvenience to operations. These loads, which are separately metered, consist of chillers that provide the majority of the central air conditioning to the Academy.

Utility Program Participation

The Maritime Administration's Suisun Bay Reserve Fleet in California utilizes its standby diesel generators when notified of an impending shut down. To assist the local utility (Pacific Gas & Electric) with the balancing of loads during peak periods, timers are used to activate the dehumidification machines on the ships only during non-peak periods. Similar programs have been planned at the other two sites.

The DOT headquarters building participates in a load curtailment program with the local electric utility, Potomac Electric Power Company. DOT has committed to reduce its load by at least 50 kilowatts during a curtailment.

Outreach

A Department-wide employee awareness program has been implemented. Energy awareness materials such as posters and bookmarks prepared by the Department of Energy's "You Have The Power" campaign have been distributed to all major DOT facilities.

J. Department of State (State)

Recent Implementation Activities

Most of State Department properties have load curtailment programs in effect for 10, 20 and 25 percent load reductions in the event of power shortages. Each plan has been developed through a coordinated effort of identification of curtailable loads achievable without sacrificing employee productivity.

Conservation Measures

The Department of State plans to implement cost-effective energy conservation projects with direct appropriations and alternative financing through GSA utility areawide contracts, DOD

areawide contracts, DOE energy savings performance contracts, and other contracting mechanisms where applicable.

The State Department will implement GSA directives that require program offices to buy, specify, and install ENERGY STAR® and other energy efficient products as designated by EPA and DOE. Guide specifications and project specifications developed for new construction and renovation will also be revised so that they require the acquisition of ENERGY STAR® and other energy efficient products. In addition, State will install energy efficient, high technology products in existing and new facilities and develop a plan for the bulk purchase of energy products;

Utility Program Participation

The State Department will promote electrical curtailment through participation in utility programs. Energy managers work with utility program managers and participate in utility load curtailment programs. Specifically, the Department participates in the Potomac Electric Power Company's load curtailment program for the Harry S Truman Headquarters Building in Washington, DC and the Beltsville Information Management Center in Lanham, Maryland. Significant electrical load shedding is accomplished in the event of necessary curtailment of electric power throughout the region.

Other State Department actions include:

- Increasing the number of competitive power procurement it issues;
- Expanding competitive power procurements to every State Department facility as electricity deregulation expands across the nation;
- Aggregating demand across State Department facilities and with other agencies' facilities to maximize the economic advantage to both the State Department and potential competitive energy providers; and
- Encouraging selection of electricity providers that generate or purchase electricity from sources that use high efficiency electric generation technologies.

Outreach

State Department efforts include partnering with other Federal agency programs and developing alliances with private sector organizations by participating in the public and private advisory committee established by Executive Order 13123 and Federal Utility Partnership Working Group sponsored by DOE FEMP.

K. Department of Health and Human Services (HHS)

Recent Implementation Activities

HHS facility managers currently have existing load reduction plans for their buildings in place for emergency situations. When developing these reduction measures HHS facility managers and

engineers categorized loads as follows: (1) life, health, and safety driven; (2) mission critical; and (3) non-critical.

The only HHS facilities in the Western power grid are Indian Health Service (IHS) hospitals and clinics and two Food and Drug Administration research/laboratory buildings. The staff operating these facilities have introduced many energy savings techniques over the last several years and reports the following additional projects that will be implemented in FY 2001 to further reduce energy consumption:

- Improvements are being made to the solar collector systems at two IHS Hospitals in New Mexico. These projects are expected to save 2.3 billion Btu annually.
- Four old boiler/chiller systems are being replaced with new energy efficient models.
- Energy efficient lights are being retrofitted as funds permit.
- As security permits, exterior accent and parking lot lighting are being reduced.
- A ground water cooling project is currently in design for a 382,000 square foot IHS medical buildings. It is estimated that this project will save 2.9 billion Btu and \$60,000 each year.

There are many other energy efficient projects planned for the future, including six additional solar installations, 10 boiler/chiller replacements, increasing sustainable designs in new buildings, and the purchase of energy efficient equipment. In addition, HHS will continue to audit facilities to determine where new energy conservation measures can be implemented.

Conservation Measures

The HHS operating divisions are formulating and implementing methods to reduce electrical loads due to lighting, office equipment (primarily computers), and air-conditioning.

With respect to laboratory space, CDC will institute an annual program to inventory media storage for all freezers and reduce the number of freezers in operation where possible. Facilities management will investigate standardizing and replacing numerous mechanical freezers to newer more energy efficient models. CDC plans to study the reduction of the required number of air changes per hour for laboratory space.

The HHS Program Support Center (PSC) is analyzing a new policy that will make it mandatory for all ENERGY STAR® computers and copiers to be set on the highest energy saving mode. The Center is also investigating the reduction of individual printers and the use of central office printers. HHS is also considering prohibiting the use of water coolers with heating and cooling capabilities along with reducing the number of beverage vending machines.

Load Reduction Strategies

Where available, energy management control systems are being used to monitor total facility demand and loads for individual pieces of major equipment. This allows facility managers to determine target levels for demand reduction and to monitor daily use patterns. When electrical

demand approaches high levels, or during utility curtailment periods, the control systems can be programmed to automatically power down nonessential equipment.

NIH will also investigate the efficiency of shedding nonessential loads, as many of its facilities are laboratories, hospitals, or animal centers. These loads may include lighting, elevators, selected test and office equipment, and fans. Personnel will investigate resetting space temperatures where possible and optimizing the use of essential HVAC equipment. Future projects for the NIH Bethesda Campus include the installation of electrical submeters on buildings to monitor and manage the electricity load more efficiently.

PSC is working with the Parklawn Building owner to request monitoring capabilities on the newly installed building monitoring system. This would enable PSC to view the current electric load at any given time. Trend analyses could also be performed to determine the existing load usage pattern and then work to modify the building operation to minimize peak loads could be performed.

Utility Program Participation

Most HHS facilities have established communications with local utility companies regarding peak load periods and demand load reduction programs. In response to these discussions, HHS facility managers have developed individual facility plans to reduce peak demand on high load days. For example, the Hubert H. Humphrey Building (headquarters for the agency) in Washington, DC, is working with PEPCO to revitalize its participation in a curtailment program. The required equipment will be updated to automatically dial key telephone numbers when curtailment periods are in effect. The building's facility management have outlined a plan that specifies which equipment will be powered down during the curtailment periods to reduce peak load demand.

The IHS Portland Area Office has instituted a new policy where upon notification of a power emergency from the local utility, the Office will alert all Federal IHS Facilities within the Portland Area to take actions to reduce energy consumption. Such actions will include building temperature adjustments, reducing lighting levels, and powering down other nonessential equipment within the facilities.

The Centers for Disease Control (CDC) Roybal campus in Atlanta, GA, uses back-up fuel oil emergency generators (capable of powering the entire campus) to generate electricity on high demand days and reduce summer peak electrical loads. The local electric utility provides CDC with an advanced notice of the next day's hourly rates. When the rates soar on hot summer afternoons, CDC activates the emergency generators to relieve the electric load. In FY 2000, roughly \$200,000 was saved by this measure.

The National Institutes of Health and PEPCO Energy Services have partnered under a GSA Area-Wide Public Utility Contract to construct one of the largest cogeneration power plants ever built for the Federal Government at the NIH Bethesda Campus. The facility is designed to boost energy efficiency, cut costs and reduce air emissions. NIH will own the plant and pay for the project out of energy savings by means of a financing package developed by PEPCO. The project will save more than \$55 million over a 15-year period.

Outreach

Several HHS facilities are establishing systems to alert employees of expected high demand days. The HHS Energy Program's strong awareness efforts will be continued and enhanced. Communication on load reduction measures that employees can take to reduce lighting, personal computer and appliance electrical demand at workstations will be stressed. In addition, the HHS Energy Program will encourage employees to reduce electrical loads in their homes, to lower demand on the utility system.

In May 2001, HHS held an alternative energy conference in Albuquerque, NM, for facility engineers in the West and Southwest areas. A stepped-up energy awareness campaign directed at employees will be introduced, and energy conservation programs enhanced throughout IHS.

L. Department of Agriculture (USDA)

Recent Implementation Activities

USDA Forest Services facilities in California participated in the State's May 24th Energy Shortage Contingency Plan Exercise. USDA facilities that were not identified as participants in that exercise will participate in upcoming follow-up workshops sponsored by DOE.

A directive was issued to all USDA Service Centers in California on May 15, 2001 to immediately adjust thermostat settings to 78 degrees or higher and to reduce lighting as practicable. The Service Centers are also reviewing their operating and administrative processes for additional energy savings opportunities. Other USDA agency facilities in California are receiving similar direction, individualized in accord with mission requirements, from their respective individual agency heads.

Conservation Measures

USDA facilities are reviewing and adjusting their operations to reduce energy consumption and eliminate energy waste by instituting immediate no cost and low cost methods. Examples of these methods include turning off illuminated directory boards, curtailing the use of decorative water fountains, and adjusting procedures to allow for pre-cooling of buildings prior to the onset of peak demand.

USDA procurement regulations and guidance will be updated to address acquisition of ENERGY STAR® and energy efficient products such as computers and lighting. Individual agencies are also updating their internal policies to require purchase of these products.

USDA agencies that lease facilities will ensure that the leases include the standard energy cost savings clause encouraging offerors to use the energy savings performance contracts or utility agreements to achieve or maintain the ENERGY STAR® building level.

Load Reduction Strategies

USDA facilities are identifying non-mission critical electrical equipment for inclusion in emergency load reduction plans during periods of high demand as identified by local utility providers.

USDA facilities that have, or that can practicably acquire, emergency backup generators, will use these to curtail electrical power demand during peak load periods in California and other locations. This action will be taken in cooperation with local utility providers.

USDA facilities undergoing modernization, such as the USDA Headquarters South Building, will install energy management control systems wherever feasible.

USDA facilities will assess the potential for use of thermal storage during cooling seasons to reduce peak electrical loads. Those facilities which already use thermal storage, such as the USDA headquarters, will provide assistance as requested to other facility locations.

The USDA Forest Service will add to its 500 photovoltaic systems now in use by installing additional photovoltaic systems in developed recreation areas, administrative sites, and other locations.

The USDA Agricultural Research Service will identify and evaluate current use of off-grid generation systems within the agency and give consideration to additional off-grid electricity opportunities where life-cycle cost effective.

Utility Program Participation

USDA facilities are working with local utility providers to develop individual facility plans to ensure readiness to participate in load-shedding programs of electric utilities at locations where these programs are offered. This includes the USDA Headquarters in Washington, DC, which has participated in the curtailable load program of the Potomac Electric Power Company for 20 years.

Outreach

USDA headquarters energy staff distributed electrical load reduction awareness materials to the largest USDA facilities in California, Oregon, Washington, and New York. These materials, provided by DOE FEMP, included “Switch the Time of Your Peak Energy Use” posters, “Turn It Off” stickers for light switches and equipment, and other related materials.

Several USDA agency heads immediately issued all employee memoranda instructing their employees to take specific energy conservation actions immediately as appropriate. Typical examples of these actions include turning off computers and lights when leaving offices, adjusting thermostat settings, modifying office attire on load reduction alert days, and limiting evening and weekend use of office facilities.

A nationwide employee awareness campaign to change the culture on energy use is underway. The goal of this campaign is to reach every USDA employee with a basic energy conservation message they can use at work and at home. Communications to USDA employees will employ a variety of formats including: messages on earnings and leave statements; internal agency memoranda; use of posters and other energy awareness materials provided by FEMP; and intranet and local area network messaging.

M. Department of the Treasury (Treasury)

Recent Implementation Activities

Every Treasury owned or fully-delegated facility developed and implemented an electrical load reduction plan based on DOE's "Plan of Action" and the initiated the load reduction measures.

An Internal Revenue Service facility in Fresno, California has been targeted by a DOE ALERT Team and has very good potential for savings. The facility consists of five buildings from 1970s with 4,000 people on 24-hour-a-day, 7-days-a-week shifts. The U.S. Mint in San Francisco has also been targeted for an ALERT assessment.

Conservation Measures

In Fresno, California, the Internal Revenue Service has developed an energy conservation plan that includes the following action items:

- Install all computers and monitors with a "Power Save" mode and direct employees to turn off equipment when leaving work; each business unit will appoint an energy coordinator to check task lights, monitors, and miscellaneous electronic equipment to ensure that they are all turned off by every day by close of business;
- The Building Management Office (BMO) will replace older light fixtures and install light sensors;
- Cooling units will be turned off in the Building 4 penthouse area above the telephone switch room;
- BMO will monitor the calendar program on the EMS system and ensure that all cooling units are turned off on the holidays when practical;
- Air-conditioning units will be removed from the guard shacks and replaced with heat pumps;
- Time settings will be verified on restroom and conference room light sensors to be on no longer than 10 minutes when the room is unoccupied;
- All water fountains coolers will be disconnected;
- Toggle switches will be installed on the water heater for each restroom so the hot water can be turned off during a stage 3 alert; and
- BMO will turn off a portion of the supply and return systems in the air handlers during reduced occupancy of the buildings.

Other efforts to conserve energy include energy retrofits and upgrades, including ceilings, window seal improvements, variable frequency drives on fan systems, installation of gas-fired absorption chillers, and retrofitting parking lot lighting.

Load Reduction Strategies

Energy audits have identified a few opportunities for self-generated renewable energy that will be implemented in FY 2002.

Outreach

Peak demand reduction and conservation awareness materials from the DOE FEMP "You Have the Power" campaign will be distributed across the Treasury Department.

N. Department of Labor (Labor)

Recent Implementation Activities

Department of Labor offices in California participated in the California Energy Commission's Emergency Load Reduction Test to demonstrate their peak load reduction capabilities.

Labor's energy strategy includes ensuring that senior management is committed to energy conservation, reinvigorating and expanding Labor's energy team, improving management of Department facilities and assets to enhance energy conservation, and increasing education and outreach to employees on energy conservation issues.

Conservation Measures

Upgrades to the Frances Perkins Building headquarters in Washington, D.C., have reduced annual energy consumption and peak electrical load demand. These upgrades include:

- Occupancy sensors for lighting in individual offices, corridors, and restrooms,
- Energy efficient T-8 fluorescent lighting in all office areas,
- High-efficiency lighting in other areas of the building,
- Automatic revolving doors at building entrances,
- Replacement of air handler motors with high efficiency motors, and
- Elevator upgrade with solid state motor controls.

Continuing these conservation measures, Labor will be installing solar film on the windows in the Francis Perkins Building.

Labor's Mine Safety and Health Administration operates two facilities in West Virginia—the Mine Health and Safety Academy in Beckley, and the Approval and Certification Center in Triadelphia. A number of retrofits have been performed at the Academy to increase energy efficiency, including installation of energy-efficient lighting, occupancy sensors and lighting timers, resized transformers, and a thermal cover for the swimming pool when not in use. The Approval and Certification Center's energy conservation efforts include an operations and maintenance contract for the facility.

Utility Program Participation

The Frances Perkins Headquarters Building will resume active participation in Potomac Electric Power Company's Curtailable Load Program. Under this program, participants receive summer monthly bill credits for reducing electricity demand in response to a request from PEPCO.

Historically, Labor has responded to PEPCO's notifications only by curtailing operation of the building's mechanical systems, e.g., cutting back on air conditioner operation. As part of its energy strategy, Labor will now enlist the cooperation and support of building employees when PEPCO requests curtailment. This will be done through all-employee e-mails asking employees to turn off unnecessary lights, office equipment, and appliances such as coffee makers.

Outreach

The Labor Department's education and outreach program will be kicked off by its leadership with a message from Secretary Chao to all employees, highlighting key aspects of the Department's Action Plan and reminding employees of their critical role in energy conservation. This will be followed by a more detailed memorandum outlining steps that employees can take

immediately to conserve energy, as well as longer term strategies for energy conservation. On an ongoing basis, Labor will increase its overall employee outreach activities, including issuance of regular all-employee e-mails highlighting energy conservation measures.

Labor has instructed its employees in California to take specific energy conservation actions in the event of energy alerts and rolling blackouts, including telecommuting; wearing loose, comfortable clothing; avoiding the use of microwaves, coffee makers, and other appliances; and turning off unnecessary lights and equipment that is not being used. California Labor employees have also been provided with energy saving tips for both the office and home.

O. Environmental Protection Agency (EPA)

Recent Implementation Activities

EPA's San Francisco Regional Office has reduced energy consumption approximately 8 percent over prior-year use and EPA's Seattle Regional Office has made similar energy savings.

EPA's regional laboratories in California, Washington, and Colorado will soon be receiving all of their electricity supplies from renewable energy sources, including solar, wind, and landfill gas. As a collective result of these measures, EPA estimates that its west coast regional offices and laboratories should reduce electrical demand from traditional sources by 30 percent by the end of this year.

Nationwide, EPA facility managers are meeting to discuss Federal initiatives to reduce energy consumption. These meetings encourage the managers to exchange ideas with each other and replicate the successes.

Conservation Measures

EPA is currently taking steps at its offices and facilities across the country to reduce energy consumption by instituting a variety of measures addressing office procedures or revising building services through coordination with GSA or the owner to cut energy consumption, especially during energy emergencies.

EPA San Francisco Regional Office has worked with GSA and the building owner on a variety of energy conservation measures, particularly during Stage 3 alerts. These energy conservation measures include turning off all non-critical equipment; conducting an energy audit of the building; resetting all building thermostats and installing locked cages on thermostats; using extra care to ensure that all lights and equipment are turned off at the end of the day and before weekends.

EPA's Seattle Regional Office has worked with GSA and their building owner to install motion detectors and voltage timers to reduce the consumption of each light fixture by 35 percent, reducing demand by 262 kilowatts per day.

Load Reduction Strategies

EPA facilities are using renewable energy technologies to supplement or replace a large portion of their energy requirements. The following facilities incorporate distributed energy resource technologies.

- The Gulf Breeze, Florida laboratory installed a photovoltaic system to generate on-site electricity to light two of the facility's four piers.
- The Research Triangle Park, North Carolina facility is installing a 100-kilowatt, integrated roof power system that will be operational by July 2001.
- The Ann Arbor, Michigan laboratory installed a 200 kilowatt natural gas fuel cell.
- At the Fort Meade, Maryland laboratory, EPA is working with DOE and Siemens-Westinghouse Power Corporation to demonstrate the world's first and largest megawatt-class solid oxide fuel cell power generation system.
- The Manchester, Washington laboratory may become the first commercial solar-powered "net metering" project in the Northwest.

Outreach

On May 16, 2001, EPA Administrator Whitman sent an all employee e-mail requesting employees to be actively and personally engaged in energy conservation. More than 50 suggestions were received in response to her message and the messages are being distributed to the appropriate facility managers for evaluation and follow-up.

Utility Program Participation

Each EPA laboratory facility has plans to shed a portion of their electric demand when requested by the servicing utility. Steps to shed demand include shutting down non-essential lighting, machines, pumps, and office equipment. EPA facility managers are the first line of coordination with the servicing utility and will coordinate the reduction throughout the laboratory with the laboratory program managers.

P. Tennessee Valley Authority (TVA)

Conservation Measures

TVA currently has an Emergency Load Curtailment Plan for its buildings and facilities. Building load reduction measures are accomplished by taking specific measures which include:

- Turning off non-essential lighting and utilizing daylight to work wherever possible;
- Informing the occupants of the building of the situation and asking for their assistance;
- Reducing elevator use where possible, using stairs;
- Keeping all unnecessary lighting turned off, such as in storerooms, closets, or other unoccupied spaces;
- Shutting off equipment such as production machines, fans, coffee makers, and other appliances until needed; and
- Utilizing TVA standard work schedule, if possible, as building heating and cooling systems will only operate during this period.

The Emergency Load Curtailment Plan is implemented in TVA buildings through the Administration's Facilities Management Organization.

Outreach

Energy management and associated environmental training is provided to managers and employees as needed. Employee awareness activities, including the annual energy awareness month display, newspaper articles, and handouts, are used to educate employees on how they impact energy and the environment through their daily activities at work and at home. TVA also educates staff in both energy and environmental related topics through the TVA University.

Q. Department of Commerce (Commerce)

Recent Implementation Activities

Under Commerce's National Oceanic and Atmospheric Administration, National Marine Fisheries Service facilities in the Northwest Region have been targeted for peak load reduction assessments by a DOE ALERT team.

Load Reduction Strategies

Facility managers at Commerce sites are separating electricity loads into health and safety, mission critical, and non-mission critical categories in order to apply appropriate load reduction measures to each. Total facility demand will be monitored along with individual major loads with the facility.

Commerce facility managers will monitor weather forecasts to predict high-demand days and to alert them to communicate with their utility providers for assessment of the need to reduce load. Load reduction measures will be initiated by directing employees to take steps to reduce electricity use for lighting, personal computers and other office equipment, and appliances.

The National Weather Service (NWS) of the National Oceanic and Atmospheric Administration (NOAA) is in the process of developing a 10-kilowatt AC solar power system as a pilot project at its facility located in Marimar, San Diego of California. This facility is typical of Radar Data Acquisition (RDA) facilities that NWS, Federal Aviation Administration, and the Air Force operate in collecting data for weather forecasting and air traffic control purposes. If successful, the design could become a model and be duplicated at similar facilities located throughout the country and the United States.

Utility Program Participation

Commerce facilities are establishing or enhancing communications with their local utility providers, assessing the needs of their service area, and working with their utilities to develop individual facility plans.

Outreach

Each Commerce facility will establish systems to alert employees of unexpected high-demand days. These systems include, but are not limited to, e-mail, voice mail, and public address announcements. Energy awareness of Commerce employees will be enhanced through training programs and less formal methods. Employees are also encouraged to reduce electricity loads in their homes and are instructed on the environmental and economic benefits of energy conservation.

R. Social Security Administration (SSA)

Recent Implementation Activities

The Social Security Administration has put a plan into place that identifies building curtailment activities in all of its Government-owned delegated buildings nationwide. The plan also included methods to increase awareness of SSA managers and employees.

In addition to the Energy Action Team which is currently in place and primarily staffed by building managers, procurement and facilities staff, SSA is establishing an Executive Level SSA Energy Policy Steering Committee. This committee will be staffed with senior management officials from SSA's regions and headquarters and will be responsible for establishing and implementing agency policy to meet the Presidential directive to reduce energy use in Federal facilities. Members of this Committee will also be responsible for enhancing employees' awareness of energy efficiency and encouraging employees to reduce electrical loads at the office and in the home.

S. Department of Housing and Urban Development

Recent Implementation Activities

HUD does not maintain any of its own facilities. There are 83 offices across the country, but all are located in Federal buildings or leased space controlled by GSA. HUD is essentially a pass-through agency whereby it forwards funding to independent Public Housing Authorities (PHAs). HUD did announce a \$105 million grant program to help defray energy costs for PHAs. PHAs that experienced energy costs in excess of 20 percent of their energy budget and have also expended their reserves are eligible for the grants.

III. OTHER AGENCY ACTIVITIES

A. Central Intelligence Agency

The George Bush Center for Intelligence receives electrical power through two independent Dominion Virginia Electric feeders, between which the Center's load is distributed. If one feeder loses power, the active feeder will automatically sustain the entire Center's load. If both feeders fail, uninterruptible power supply (UPS) systems will support critical communications, computer centers, and emergency lighting until emergency generators achieve operating speed to allow the load to be transferred from the UPS systems. The generators can support approximately 80 percent of the Center's load.

The Center's electrical configuration allows entire buildings or selected parts of buildings to be shed. A prioritized list is readily available to emergency response operations at the Center's central plant. Additionally, through the Agency's Building Management System the supply air temperature can be globally changed throughout the Center to achieve further reductions.

B. Consumer Product Safety Commission

The General Services Administration operates and maintains the CPSC facilities. These facilities consist of 100,679 square feet of commercial space leased for CPSC by GSA in Bethesda, Maryland and 24,000 square feet of laboratory space owned by GSA in Gaithersburg, Maryland.

C. Defense Nuclear Facilities Safety Board

The Board supports the efforts to protect the environment and save taxpayer dollars through the reduction of energy usage in Federal facilities. The Board's headquarters facility managers will continue to work with GSA and its building management toward that end. The following are actions both completed and ongoing to assure energy conservation in their leased space:

- Automatic light switches are installed in 95 percent of the offices;
- Purchase of low wattage, energy saving light bulbs;
- Preventive maintenance is performed on HVAC systems every two months;
- An energy management system is in place to control the air temperatures and start/stop times; and
- Airflow is continually balanced throughout the building.

D. Equal Employment Opportunity Commission

In response to President Bush's directive, EEOC has expanded its energy conservation activities. EEOC maintains 50 field offices nationwide and a headquarters in Washington, D.C. The Agency relies on GSA for the procurement of all of its space. EEOC continues to inform employees of the importance of conserving energy and has directed all offices to employ conservation methods and to explore new activities at the local level.

E. Federal Communications Commission

GSA is responsible for entering into leases for space on behalf of the FCC and incorporates energy conservation indicatives into each lease. While the Commission does not have special funding set aside solely for energy reduction programs, it shares the Administration's commitment in reducing energy use and continues to address energy improvements. For example, FCC has implemented new operating procedures which have reduced over-time utilities from 105.5 hours per week to merely 28.5 hours per week, resulting in significant energy conservation for a 535,000 square foot facility. FCC continues to invest in energy saving equipment such as computer monitors that not only need less energy to operate, but also have the energy-saving automatic "sleep" mode.

F. Federal Maritime Commission

The Federal Maritime Commission has evaluated its activities and programs to identify measures it can take to conserve energy. The Commission has directed all of its employees to turn off lighting in offices and areas not in use, to turn off other office equipment during any lengthy absences, and to maintain thermostats at reasonable levels.

G. Federal Trade Commission

During periods of high energy demand, FTC uses its daily electronic newsletter to remind staff of conservation measures, both in the office and at home. FTC will also close one elevator in each bank. FTC is investigating participating in Potomac Electric Power Company's Curtailable Load Program.

H. National Archives and Records Administration

NARA continues to be a participant in Potomac Electric Power Company's Curtailable Load Program. Loads are separated into life, health, and safety; mission critical, and non-critical. NARA will immediately update the agency energy awareness notice, stressing the need for increased diligence, and circulate the notice to all employees.

I. National Science Foundation

NSF has taken low-cost, no-cost measures to reduce utility consumption in its electrical systems. Examples include the installation of motion detection lighting controls and the purchase of energy-efficient electrical equipment and supplies. NSF is in the process of working with GSA to request the local utility company to perform a preliminary energy audit of its building. Wherever possible, recommendations for energy conservation resulting from the audit will be implemented.

J. National Transportation Safety Board

The National Transportation Safety Board is not located in a Federal facility; however, in coordination with its commercial landlord, NTSB has implemented the following conservation actions:

- turning off office equipment and lighting when the space is unoccupied, and
- procuring computer equipment that meets appropriate efficiency standards.

Safety Board regional offices, including California these in and in the Northeast and Northwest are leased by GSA.

K. Nuclear Regulatory Commission

The NRC has made a concerted effort to operate its headquarters building in an energy efficient manner. For example, NRC maximizes the use of heat exchanges, in lieu of chillers, to obtain “free cooling”; building operating temperatures are adjusted to a constant 78 degrees at the top of the summer cooling band and 68 degrees at the bottom of the winter heating band; and operation of garage fans is reduced during non-rush hours. Other energy conservation measures include motion sensors in restrooms and elevator lobbies, energy-efficient exit signs, reduced lighting levels in the main lobbies, and an employee awareness program to encourage employees to turn off lights and computers at the end of the workday.

Since March 2000, NRC has also performed energy audits for both of its headquarters buildings to identify additional energy conservation measures. NRC is in the process of implementing some recommendations from these audits, including installing more energy efficient lights and motion sensors to reduce energy consumption.

L. Office of Personnel Management

Over the past several years OPM has been actively involved on a variety of fronts to conserve energy use and have developed a comprehensive and effective program. OPM has participated actively in its local electrical utility provider’s “Load Curtailment Program” since 1990.

M. Office of Special Counsel

OSC has reviewed their existing operating and administrative processes and conservation programs to determine ways the Office can further conserve energy. A notice has been issued to all employees asking them to take a proactive role in conserving energy in the workplace. Measures taken to conserve energy include turning off lights, personal computers, and appliances that are not in use for prolonged periods of time.

N. Peace Corps

The Peace Corps has developed and disseminated energy efficient suggestions and guidelines for all of its offices. These include turning off lights when rooms are not in use, ensuring lights and office equipment are turned off at the end of each day, keeping blinds closed during afternoon hours and limiting the use of after-hours cooling and heating.

The Peace Corps building located in Washington DC was renovated three years ago allowing for many “state-of-the-art” energy efficient features. These include computerized energy management systems for heating and cooling, motion sensitive light switches, and window glass that filters sunlight during peak mid-afternoon hours.

O. Railroad Retirement Board

The Railroad Retirement Board, in conjunction with its local electricity provider in Chicago, is actively participating in a new electrical load reduction program, called Planned Performance Load Reduction. The program requires RRB to reduce electrical demand during critical conditions. Actions taken during a curtailment event include employee outreach, HVAC measures, lighting reductions, and reducing loads from elevators and electrically-intensive processes.

APPENDIX A

Agency Senior Energy Officials

Department of Agriculture	Mr. Lou Gallegos, Assistant Secretary for Administration
Department of Commerce	Chief Financial Officer and Assistant Secretary for Administration
Department of Defense	Mr. David Oliver, Principal Deputy Under Secretary of Defense (Acquisition, Technology and Logistics)
Department of Energy	Mr. David Garman, Assistant Secretary for Energy Efficiency and Renewable Energy
Department of Health and Human Services	Mr. Dennis Williams, Acting Assistant Secretary for Management and Budget
Department of Housing and Urban Development	General Deputy Assistant Secretary for Administration
Department of the Interior	Mr. Robert J. Lamb, Acting Assistant Secretary, Policy, Management and Budget
Department of Justice	Ms. Janis A. Sposato, Acting Assistant Attorney General
Department of Labor	Assistant Secretary for Administration
Department of State	Mr. Patrick F. Kennedy, Assistant Secretary for Administration
Department of Transportation	Ms. Melissa J. Allen, Assistant Secretary for the Administration
Department of the Treasury	Mr. James J. Flyzik, Acting Assistant Secretary for Management and Chief Information Officer
Department of Veterans Affairs	Dr. Thomas L. Garthwaite, Under Secretary for Health
Environmental Protection Agency	Assistant Administrator for Administration and Resources Management
General Services Administration	Mr. Paul Lynch, Assistant Commissioner for Business Performance
National Aeronautics and Space Administration	Mr. Jeffrey E. Sutton, Associate Administrator for Management Systems
Social Security Administration	Mr. Peter D. Spencer, Acting Deputy Commissioner for Finance, Assessment and Management
Tennessee Valley Authority	Ms. LeAnne Stribley, Executive Vice President Administration
U.S. Postal Service	Mr. Tom Day, Vice President of Engineering

Central Intelligence Agency	Mr. Volner S. Robertson, Chief, Facilities Management & Senior Energy Official
Consumer Product Safety Commission	Mr. John Allen, Director, Metropolitan Service Division
Equal Employment Opportunity Commission	Ms. Sylvia Anderson, Acting Director Office of Communications and Legislative Affairs
Federal Trade Commission	Ms. Sherry Greulich, Director, Administrative Services Office
National Archives and Records Administration	Ms. Adrienne Thomas, Assistant Archivist for Administrative Services
National Science Foundation	Ms. Mary Lou Higgs, Acting Director
Nuclear Regulatory Commission	Ms. Patricia G. Norry, Deputy Executive Director for Management Services
Office of Personnel Management	Mr. Steven Van Rees, Director, Office of Contracting and Administrative Service
Peace Corps	Mr. Michael J. Kole, Director, Office of Administrative Services

APPENDIX B

Presidential Directive

APPENDIX C

DOE Reporting Guidance and Plan of Action

Guidance for Preparing Energy Conservation at Federal Facilities Report

The report on actions taken in accordance with the Presidential Directive on Energy Conservation at Federal Facilities should follow the format described below. Agencies should provide any additional information as necessary to describe their actions.

I. Management and Administration. This section should describe (1) the agency's establishment of an energy management infrastructure and (2) the agency's plans to use management tools in implementing conservation actions under this Presidential Directive.

A. Energy Management Infrastructure

- 1. Senior Agency Official.** Identify the agency's senior energy official and describe the official's role and responsibilities.
- 2. Agency Energy Team.** Identify any members of the team that will help the Senior Agency Official implement energy management activities and describe the team's responsibilities.

B. Management Tools

- 1. Awards (Employee Incentive Programs).** Describe any agency plans to use employee incentive programs to reward exceptional performance in achieving conservation actions.
- 2. Performance Evaluations.** Describe any agency plans to include successful implementation of conservation actions in the position descriptions and performance evaluations of members of the agency energy team and facility/energy managers.
- 3. Training and Education.** Describe any agency plans to ensure that all appropriate personnel receive training for implementing energy conservation actions. Describe plans to develop and implement agency outreach programs that include education, training, and promotion of ENERGY STAR® and other energy efficient products for Federal purchase.
- 4. Showcase Facilities.** Describe any agency plans to construct or renovate exemplary facilities that the agency plans to designate as Showcase Facilities for Energy Conservation. Discuss why the facilities will be considered Showcase Facilities (i.e., discuss the facility design, the

improvements made in energy or water efficiency, the use of renewable energy, etc.).

II. Implementation Strategies. The purpose of this section is to describe any applicable strategies that will be used to encourage energy conservation actions in your agency's facilities to reduce energy consumption and improve energy efficiency.

- A. Life-Cycle Cost Analysis.** Outline any strategy to institute procedures to ensure the use of life-cycle cost analysis in making investment decisions about products, services, construction and other projects to achieve energy conservation actions and lower the Federal Government's costs for energy.
- B. Facility Energy Audits.** Describe the number/percentage of agency facilities that will be audited for energy conservation actions.
- C. Financing Mechanisms.** Provide information on the planned use of Energy Savings Performance Contracts (ESPCs), Utility Energy Services Contracts (UESCs), or existing budget authority to implement energy conservation projects.
- D. ENERGY STAR® and Other Energy-Efficient Products.** Describe steps to be taken to promote the purchase of ENERGY STAR® products and/or products that are in the upper 25 percent of energy efficiency as designated by the Federal Energy Management Program (FEMP). (See the ENERGY STAR® products and "green" products web sites by GSA [www.fss.gsa.gov/enviro], DOE [www.eren.doe.gov/femp/procurement/begin.html], and EPA [www.epa.gov/uiseerko/index.html])
- E. ENERGY STAR® Buildings.** Report the number and percentage of buildings that are expected to meet the ENERGY STAR® Building criteria and to be officially designated ENERGY STAR® Buildings. (Buildings must rank in the top 25 percent in energy efficiency relative to comparable commercial and Federal buildings to be eligible for the ENERGY STAR® Buildings designation. See www.epa.gov/buildings/label).
- F. Sustainable Building Design.** Report whether sustainable building design principles will be incorporated into the siting, design, and construction of new facilities. Report the number of buildings that will achieve Leadership in Energy and Environmental Design (LEED) Certification. (See www.wbdg.org for a description of sustainable building design principles and www.usgbc.org for LEED Certification).
- G. Energy Efficiency in Lease Provisions.** Describe any strategy for how energy conservation will be considered when your agency enters into new leases, or extends existing leases (e.g., preference for buildings with sustainable design and development, preference for certified ENERGY STAR® Buildings, etc.)

- H. Industrial Facility Efficiency Improvements.** Describe any planned strategies to explore efficiency opportunities in energy-intensive facilities. This may include activity in the following areas: steam systems, boiler operation, air compressor systems, industrial processes, fuel switching, cogeneration, and other efficiency and renewable energy technologies.
- I. Highly Efficient Systems.** Describe any plans for new construction and/or retrofit projects for which combined cooling, heating, and power systems will be installed.
- J. Off-Grid Generation.** Describe any plans for installing new solar hot water, solar electric, solar outdoor lighting, small wind turbines, fuel cells, and other off-grid alternatives.
- K. Electrical Load Reduction Measures.** Describe your agency's plans for electrical load reductions that will be taken during power emergencies to cut electricity consumption in its buildings and facilities. (See [www.eren.doe.gov/femp/newsevent/power outage.html](http://www.eren.doe.gov/femp/newsevent/power%20outage.html) for information on electrical load reduction measures.)

Questions and Answers for Energy Conservation at Federal Facilities Report

Question 1. Should Federal agencies report on their past energy conservation actions when they have already accomplished significant reductions in energy conservation?

Answer: We are asking Federal agencies to only report on the actions that they will be taking in this fiscal year and beyond to meet this Presidential Directive. This will consist of both continuous actions that have proved successful in the past and the identification and implementation of additional ways to conserve energy use that will be accomplished in accordance with this Directive. We realize that the Federal government has demonstrated its ability to achieve energy conservation by reducing its energy consumption by over 20% since fiscal year 1985, but we also believe that it will be necessary for the Federal government to demonstrate leadership in this critical area by continuing to implement conservation actions to reduce energy consumption and demand.

Question 2. Why does this reporting format seem to emphasize what will be accomplished under the management and administration of these energy conservation programs rather than just the actual energy conservation actions that will be implemented?

Answer: We believe that the emphasis for energy conservation at Federal facilities must start with the management practices and be a shared vision with all of our employees. Therefore, we are stressing in this report format that energy conservation not only be the identified actions that will be taken at our facilities, but ensuring that energy conservation also becomes part of the culture of our Federal facilities.

Question 3. Will Federal agencies energy conservation programs be evaluated by the Secretary of Energy as part of this reporting?

Answer: The Secretary of Energy will ask the Federal Energy Management Program (FEMP) to review the reports that are submitted in the next 60 days. FEMP will review these reports to determine if there is any assistance that they can provide to the agencies in accomplishing the actions that are identified in accordance with this Directive. We believe that agencies should be evaluated on their accomplishments and the energy reductions that are achieved from the energy conservation actions that are finally implemented.

Plan of Action

Energy Conservation at Federal Facilities

Background

A key component of this Administration's overall commitment to make the most economical use of public dollars and to protect the environment is to improve energy conservation at Federal facilities. Further, with possible electricity shortages in California, and in the Northeast and Northwest this summer, the Federal Government should set a good example of conservation by reducing its own energy use, particularly in regions where electricity shortages may occur and during periods of peak electricity demand. Such conservation would save public money, protect the environment, and help to minimize shortages. The Federal government is in a position to reduce loads and make a sizable contribution in the effort to avoid Electrical Emergencies.

On May 3, 2001 President Bush issued a directive to the heads of executive departments and agencies ("agencies") to take appropriate actions to conserve energy use at their facilities to the maximum extent consistent with the effective discharge of public responsibilities. Agencies located in regions where electricity shortages are possible should conserve use especially during periods of peak demand.

The Department of Energy will be dispatching special DOE ALERT Teams to the top 25 largest energy-using federal facilities in California. These *Assessment of Load and Energy Reduction Technique* Teams will identify key short-term measures at federal sites in the State in order for them to reduce their own peak load. DOE will hold a workshop in the next few weeks to pass on the "lessons learned" to all federal facilities.

Many federal facilities already realize the financial benefits of planning for electrical load reductions, and have excellent plans in place. The Federal government as a whole has reduced its energy consumption in buildings by 20% and is on track to achieve a 35% by 2010. While these gains in efficiency have been measured in terms of efficiency there is a corresponding reduction in demand on the electrical system. The experience gained by these facilities forms the basis of this Federal-wide plan to be implemented by all Federal facilities in support of local electrical use reduction efforts. Individual facility plans should be customized to site specific conditions. The requirement for emergency conservation plans is contained in Title 10, Code of Federal Regulations, Part 436, Subpart F, Paragraph 436.105.

Reporting of Conservation Actions to the President

Agencies should review their existing operating and administrative processes and conservation programs and identify and implement additional ways to conserve such use. All agencies are required to report back to the President, through the Secretary of Energy, by June 3rd on the conservation actions taken. The agencies shall take these and other appropriate energy conservation actions using existing budget authority. The required format for the report will be provided by the Department of Energy's Federal Energy Management Program.

General

1. Establish/enhance communications with the local utility company. Understand their needs for load reductions. Work with the local utility to develop the individual facility plan. An example is the Potomac Electric Power Company's (PEPCO's) Curtailable Load Program. During the summer of 1999, participating Federal agencies in the Washington, DC area provided an estimated eight megawatts of peak load reduction on five occasions when requested by PEPCO, assisting PEPCO, and enhancing grid reliability.
2. Identify load reduction measures appropriate for the facility. Investigate separating loads into: (1) Life, health and safety driven; (2) Mission critical; and, (3) Non-critical. If not separately switchable, investigate modifying systems to allow terminating or reducing non-critical loads.
3. Agencies should immediately update their facility's "Plan of Action for Emergency Electricity Reductions".
4. Federal facilities in California are encouraged to participate in the state's May 24th Emergency Load Reduction Test. The California Energy Commission is sponsoring the test, with federal participation coordinated by DOE. The test will include actual energy conservation measures taken by federal, state, local and private sector facilities. The California Independent System Operator will monitor the load reductions.
5. During Stage 2 or 3 alerts in California federal facilities should take steps to rapidly reduce their electricity loads, even if these actions would require some sacrifices in employee comfort or convenience. These actions should include: raising indoor temperatures to 78 degrees; shutting down non-essential space cooling up to one hour before the normal close of each workday; turning off nonessential lighting and building systems such as escalators; a portion of all elevators, chilled water for fountains); and, reducing corridor lighting. DOE facility managers are required to take these steps.
6. Establish a system to alert employees of expected high demand days including, but not limited to E-mail, voice mail, or public address announcement to all employees. Communicate early to allow employees to take load reduction measures at home and to dress appropriately.
7. Monitor total facility demand and demands for individual major loads (if separate metering is available). Monitor weather forecasts to predict high demand days and be proactive in communicating with the local utility to assess need to reduce load.
8. Initiate load reduction measures. Employees can take steps to reduce lighting, personal computers and appliances electricity use. While energy efficiency should be encouraged on a daily basis, stress the need for increased diligence to alleviate the emergency. Air conditioning operating changes and other system-wide measures should be accomplished by facilities management. Federal facilities that have energy management and control systems are well suited for this task. Facilities should also consider additional measures appropriate for site specific circumstances.
9. Encourage employees to reduce electrical loads in their homes, to reduce demand on the utility system. If no one is at home during the workday, unneeded appliances and lights should be turned off, and air conditioning thermostats should be set higher before departing for the day. Also, some utilities offer cost incentives to residential customers

who allow the utility to remotely cycle off power to air conditioning and electric water heating systems. Periods without power are limited, so that comfort is not sacrificed. Encourage employees to participate in these programs, to assist the local utility, while reducing their electricity bill.

10. Enhance employee awareness of energy efficiency through training and less formal methods. Provide mandatory and voluntary training opportunities on smart energy practices so that employees can practice energy efficiency during emergency periods and year-round. In addition to training, run public service announcements about energy efficiency on televisions in cafeterias and other public use areas; send periodic e-mail messages about turning off lights and computers and implementing other efficiency practices; post signs or billboards near light switches or communal printers; and consider holding annual energy fairs prior to seasonal emergency periods to provide additional information for employees about how to manage energy use in the work place and in their homes.

Lighting Measures

1. Turn off fluorescent lights when leaving an area for more than 1 minute. (During non-emergencies, 5 minutes is recommended, to keep from excessively reducing lamp life). Turn off incandescent lights when leaving areas for any period of time.
2. In areas with sufficient daylighting, turn off lights. Adjust blinds, if available, to reduce glare.
3. Use task lighting and turn off general lighting, where it is feasible to maintain sufficient lighting levels for safety and productivity.
4. Turn off display and decorative lighting.

Personal Computers And Appliance Measures

1. Turn off printers when not in use.
2. Turn off monitors when not in use.
3. Ensure ENERGY STAR power down features are activated.
4. If computers do not have ENERGY STAR features available, turn them off when leaving the office for more than 30 minutes.
5. Ensure personal appliances, such as coffee pots and radios are turned off.

Air Conditioning Measures

1. Pre-cool building(s) below normal temperature settings prior to onset of peak demand period. Make sure to tell employees about this practice, so that they will not operate space heaters. During peak demand period, allow space temperatures to drift back up to normal settings (or as much as 5 degrees Fahrenheit (F) above normal settings).
2. Allow casual attire, to make higher temperatures more acceptable.

3. Where systems allow, lower chilled water temperatures several degrees below normal settings prior to peak periods, and allow to drift above normal settings during peak periods.
4. Duty cycle air handling units off. Ensure adequate outside air flow rates to maintain indoor air quality.
5. Ensure that ventilation grilles and fan coil units are not blocked by books, flowers, debris, or other obstructions. This will improve air conditioning system efficiency and improve comfort.

Other

1. Operate emergency generators (many agencies have negotiated financial incentives from their local utility for operating generators). Ensure that generators have ample fuel for emergency operation and have been tested routinely. Turn off shore power to ships in dock and operate ship power systems. Make mobile utility system electrical generating equipment available to the local utility.
2. Shut off selected elevators and escalators. Ensure accessibility needs are met.
3. Where feasible, schedule high electrical energy use processes during off peak periods.
4. Encourage employees to not use copiers during peak demand period. Turn off selected copiers. Ensure power saver switch on copiers is enabled.
5. Turn off unnecessary loads such as fountain pumps.

Long Term Solutions

1. Consider purchasing interruptible power for selected loads with high electrical demand, and which will not suffer adverse consequences in the event of the utility turning off power. The cost savings from the lower rate may far outweigh the inconvenience of power being turned off within the interruption limitations agreed to in the utility contract.
2. Consider installing sub-metering to identify high intensity loads to be shed during emergencies.
3. Investigate thermal storage systems or alternative energy sources for air conditioning.
4. Install motion sensors and separate lighting circuits to allow turning off unneeded lights. (Some agencies have installed switching to separate public areas from agency work spaces).
5. Install an Energy Management and Control System to allow shedding and monitoring loads from one central location. If non-critical loads are not separately switchable, modify systems to allow terminating. Local utilities or energy services companies (ESCOs) can assist with this effort.
6. Consider adding on-site generation using micro-turbines, fuel cells, combined heat and power, renewable, or other appropriate technology.

Department of Energy - May 4, 2001

For implementation questions or assistance, please contact the Federal Energy Management Program at 202-586-5772.

APPENDIX D

Agency Reports Responding to the President's Memorandum on Energy Conservation at Federal Facilities (alphabetical listing)

Major Agencies

Department of Agriculture
Department of Commerce
Department of Defense
Department of Energy
Department of Health and Human Services
Department of Housing and Urban Development
Department of the Interior
Department of Justice
Department of Labor
Department of State
Department of Transportation
Department of the Treasury
Department of Veterans Affairs
Environmental Protection Agency
General Services Administration
National Aeronautics and Space Administration
Social Security Administration
Tennessee Valley Authority
U.S. Postal Service

Other Agencies

Central Intelligence Agency
Consumer Product Safety Commission
Defense Nuclear Facilities Safety Board
Equal Employment Opportunity Commission
Federal Communications Commission
Federal Maritime Commission
Federal Trade Commission
National Archives and Records Administration
National Science Foundation
National Transportation Safety Board
Nuclear Regulatory Commission
Office of Personnel Management
Office of Special Counsel
Peace Corps
Railroad Retirement Board